

22

23

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SUPPLEMENTARY NOTICES

OF

FISHES FROM THE FRESHWATER TERTIARIES OF THE ROCKY MOUNTAINS.

RHINEASTES, Cope.

Hayden's Annual Report, 1872, 638.

RHINEASTES PECTINATUS, *sp. nov.*

This catfish is represented by a single specimen, which includes only the inferior view of the head and body anterior to the ventral fins. These exhibit characters similar in many respects to those of *Amiurus*, Raf.; but the interoperculum, the only lateral cranial bone visible, displays the dermoossified or sculptured surface of the Eocene genus, to which I now refer it. Other characters are those of the same genus. Thus the teeth are brush-like, and there is an inferior limb of the post-temporal bone reaching the basi-occipital. The modified vertebral mass is deeply grooved below, and gives off the enlarged diapophysis that extends outward and forward to the upper extremity of the clavicle. The patches of teeth on the premaxillary are separated by a slight notch at the middle of the front margin. The teeth are minute. The four basihyals and the elongate anterior axial hyal are distinct; also the ceratohyal with its interlocking median suture. The number of branchiostegal radii is not determinable; there large ones are visible. The mutual sutures of the clavicles and coracoids are interlocking, and their inferior surface displays grooves extending from the notches. The pectoral spine is rather small, and bears a row of recurved hooks on its posterior face; there are none on the anterior face.

The head is broad, short, and rounded in front, which, with the uncinuate character of the serration of the pectoral spine, reminds one of the existing genus *Noturus*. As compared with the five species of *Rhineastes*, described from the Bridger Eocene, the present species is distinguished by the small size and large uncini of the pectoral spine.

Measurements.

	M.
Length of head to clavicle (below).....	0.0180
Width of head (below).....	.0360
Width of scapular arch (below).....	.0110
Expanse of modified diapophyses.....	.0200
Length of modified vertebræ.....	.0115
Length of pectoral spine.....	.0210

From the Tertiary shale of the South Park, Colorado.

AMYZON, Cope.

Hayden's Annual Report, 1872, 642.

AMYZON COMMUNE, *sp. nov.*

In describing this species, the following additions to our knowledge of the generic characters may be made. There is an open fronto-parietal fontanelle; the premaxillary forms the entire superior arch of the mouth; the pharyngeal bones are expanded behind; there are 12 to 13 rays of the ventral fin; there is a lateral line of pores, which divides the scales it pierces to the margin.

The greatest depth of the body is just anterior to the dorsal fin, and enters the length 2.66 times to the base of the caudal fin, or a little more than three times, including the caudal fin. The length of the head enters the former distance a little over 3.25 times. The general form is thus stout and the head short; the front is gently convex, and the mouth terminal. There are fifteen or sixteen rows of scales between the bases of the dorsal and ventral fins. They are marked by close concentric lines, which are interrupted by the radii, of which eight to fifteen cross them on the exposed surface, forming an elegant pattern. At the center of the scale the interrupted lines inclose an areolation. The extended pectoral fin reaches the ventral or nearly so; the latter originates beneath the anterior rays of the dorsal, or in some specimens a little behind that point. They do not reach the anal when appressed. The anal is rather short, and has long anterior radii. The dorsal is elevated in front, the first ray being a little nearer the basis of the caudal fin than the end of the muzzle. Its median and posterior rays are much shortened; the latter are continued to near the base of the anal fin. Radii, D. 33; P. 14; V. 13; A. 12. The caudal is strongly emarginate and displays equal lobes.

Measurements.

	M.
Length of a large specimen (10.25 inches).....	0.250
Length of a medium specimen.....	.182
Depth at occiput.....	.043
Depth at dorsal fin.....	.057
Depth at caudal peduncle.....	.023
Length of head, axial.....	.044
Length to D. 1, axial.....	.075
Length to end of dorsal, axial.....	.131
Length to basis of caudal fin.....	.146
Length of basis of anal fin.....	.023

There are 38 or 39 vertebrae, of which 9 are anterior to the first inter-neural spine, and 14 between that point and the first caudal vertebra.

A very large number of specimens was obtained by Dr. Hayden and myself from the Tertiary shales of the Middle and South Parks, Colorado. They display but insignificant variations in all respects, and furnish a good basis of determination. They all differ from the *A. mentalis* (Cope, Proceed. Amer. Philos. Soc., 1872, 481) in the larger number of vertebrae and dorsal and anal fin radii, and greater prolongation of the dorsal fin. It is, however, nearly allied to the species of the Osage shales. The only fish found associated with this one is the small nematognath just described. The predominance of these types and exclusion of the brackish-water genera *Asineops*, *Erismatopterus*, and *Clupea*, so abundant in the shales of the Green River epoch, indicate a more lacustrine, and hence, perhaps, though not necessarily, later deposit.

CLUPEA, Linn.

CLUPEA THETA, *sp. nov.*

represented by a specimen from the Green River shales near the mouth of Abarge Creek, in the upper valley of Green River. It is a larger species than the *C. humilis*, Leidy, which is also found at the same locality, and it has a much longer anal fin. Its radii number 26, possibly more, as the end appears to have been injured. The dorsal fin is the last ray in advance of the line of the first of the anal. The body is deep. Number of vertebræ from the first interneural spine to the interhæmal, 29. Depth at first dorsal ray, 0.0485; depth at last ray, 0.0170; length of 29 vertebræ, 0.0780.